

Application Number 09/873,933
Responsive to Office Action mailed December 28, 2007

REMARKS

This Amendment is responsive to the Office Action dated December 28, 2007. Applicant has amended claims 2 and 63 and added claims 65-69. Claims 1-3, 37-45 and 47-69 are pending; however, claims 38, 42 and 45 have been withdrawn from consideration.

Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1-2, 37, 39-41, 43-44 and 47-64 under 35 U.S.C. 103(a) as being unpatentable over Mulcahy et al. (US 6,002,746) in view of Dolin, Jr. et al. (US 5,420,572). The Examiner also rejected claim 3 under 35 U.S.C. 103(a) as being unpatentable over Mulcahy et al. in view of Dolin, Jr. et al. and further in view of Kennedy et al. (US 6,163,594). Applicant respectfully traverses the rejections. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

Applicant respectfully traverses the rejection of claims 1-2, 37, 39-41, 43-44 and 47-64. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

As a preliminary matter, Applicant would like to express frustration with the current rejection. The same rejection was previously applied in the Office Action mailed January 11, 2006. Applicant previously overcame this rejection as evidenced by the Office Action mailed July 21, 2006, in which a different ground of rejection was applied. Applicant raised a variety of points demonstrating the insufficiency of the current rejection in the response to the Office Action mailed January 11, 2006. However, these points were not addressed by the Examiner in the current Office Action. For these reasons, Applicant submits that the current Office Action fails to meet the standard of completeness required for an Examiner's Action as defined by 37 CFR 1.104 (b).

Application Number 09/873,933
Responsive to Office Action mailed December 28, 2007

Examiner's arguments

In support of the rejection, the Examiner cited Mulcahy (at Col. 7, lines 64-67), as disclosing prompting an installer to manually input a location code associated with a subscriber unit, and receiving the location code in the subscriber unit. The Examiner apparently considered the terminal number in Mulcahy to be a location code, as claimed. The Examiner further characterized Mulcahy as disclosing transmitting a location code via a network to a central repository (citing Col. 7, lines 29-32), and storing the location code in the central repository to associate the location code with a physical port (citing Col. 8, lines 7-9).

The Examiner acknowledged that Mulcahy fails to teach transmitting both a location code and a subscriber unit identifier to a central repository. Indeed, as discussed below, the transmission of a subscriber unit identifier in the Mulcahy system would not serve any purpose. The Examiner nevertheless cited Dolin for such a teaching. In particular, the Examiner characterized Dolin as teaching a configuration device that allows communication of information identifying a network node and node type to the device so that a network can be easily configured. The Examiner further stated that Dolin uses a unique identifier for installation and maintenance of the network, and allows an installer to enter location codes so that the location, node identification and node type may be used for configuration of the network.

The Examiner concluded that it would have been obvious to modify the Mulcahy system in view of Dolin in order to quickly identify nodes that may be malfunctioning or have not been configured. The Examiner did not specify the nature of the modification to Mulcahy. Applicant presumes that the modification may relate to the entry of both a location code in combination with a node identification, and transmission of the location code and node identification to a central repository.

The conclusion of obviousness advanced in the Office Action is erroneous for several reasons. The rejection seems to have overlooked several limitations expressed in the claims, and misinterpreted the scope and content of the Mulcahy and Dolin references, as discussed in greater detail below. In summary, as pointed out by Applicant in previous responses, the terminal number described by Mulcahy clearly is not a location code, as defined by Applicant's claims. In

Application Number 09/873,933
Responsive to Office Action mailed December 28, 2007

addition, the node identifier described by Dolin does not conform to the requirement of a subscriber unit identifier in the claims. Further, modification of the Mulcahy system to transmit a node identifier per Dolin would serve no purpose in the Mulcahy system. Because Mulcahy describes a point-to-point system, information is directed to terminal equipment by simply routing the information to the terminating line associated with the terminal equipment. In Mulcahy, a subscriber unit identifier is not required to direct information to a subscriber.

It appears that the rejection overlooked the actual language of the claims. Claim 1, for example, recites a method for correlation of a subscriber unit in a point-to-multipoint network with a geographic location. The method of claim 1 requires prompting an installer to manually input a location code associated with a subscriber. As specified in claim 1, the location code permits identification of a geographic location of the subscriber. Upon receipt of the location code in the subscriber unit, the location code and a subscriber unit identifier are transmitted via the network to a central repository. The location code and the subscriber unit identifier are stored in the central repository to correlate the subscriber unit with the geographic location.

Hence, claim 1 specifies that the location code permits identification of a geographic location of a subscriber. However, the Examiner's analysis did not even make reference to this requirement. Instead, the Examiner appeared to refer to language in a previous version of the claims, i.e., a physical port. The previous version of claim 1 has not been pending in the application since Applicant's amendment filed on October 17, 2005. The present version of claim 1 more clearly refers to correlating a subscriber unit with a geographic location. Clearly, a terminal number does not provide an indication of a geographic location of a subscriber unit. In Mulcahy, a terminal number simply describes a line that passes through a terminal of a node. There is no need to provide a subscriber unit identifier in Mulcahy.

Likewise, claim 49 defines a method comprising receiving a location code associated with a subscriber in a subscriber unit in a point-to-multipoint network, wherein the location code permits identification of a geographic location of the subscriber, and transmitting the location code and a subscriber unit identifier from the subscriber unit to a remote device for correlation of the subscriber unit with the geographic location.

Claim 63 defines a method for correlating a subscriber unit in a point-to-multipoint network with a geographic location, the method comprising prompting an installer to manually

Application Number 09/873.933
Responsive to Office Action mailed December 28, 2007

input a location code associated with a human subscriber into the subscriber unit, the location code permitting identification of a geographic location of the human subscriber, wherein the subscriber unit is located at the geographic location of the human subscriber, receiving the location code in the subscriber unit, transmitting the location code and a subscriber unit identifier from the subscriber unit to a remote device via the network, and correlating the subscriber unit with the geographic location based on the location code and the subscriber unit identifier.

In addition, claim 56 recites subscriber unit for a point-to-multipoint network, the subscriber unit comprising a subscriber interface that receives a location code associated with a subscriber, wherein the location code permits identification of a geographic location of the subscriber; and a network interface that transmits the location code and a subscriber unit identifier to a remote device for correlation of the location code with the geographic location.

A point-to-point network as disclosed by Mulcahy contrasted with a point-to-multipoint network

When a subscriber unit is installed in a point-to-multipoint network, as claimed, there is no a priori knowledge as to the geographic location of the subscriber unit. Although a subscriber unit may have a unique identifier, the subscriber unit can be located at any one of the geographic locations served by the multipoint network. Consequently, there is a need to correlate the subscriber unit with a geographic location of the subscriber so that services can be provisioned for the subscriber. As described in Applicant's specification, a passive optical network (PON) is one example of a point-to-multipoint network. In some embodiments, the subscriber unit may be an optical network unit (ONU) in a PON.

As discussed in Applicant's previous responses, even though a subscriber unit may be known by the point-to-multipoint network, e.g., according to a subscriber unit identifier such as a serial number, the identity of the particular subscriber and geographic location of the subscriber associated with the subscriber unit remains unknown. In particular, multiple subscribers are served by the same transmission line as a shared communication medium. In other words, there are no point-to-point connections such as terminals or nodes that would permit identification of different subscribers according to separate lines that terminate with the respective subscribers.

Application Number 09/873,933
Responsive to Office Action mailed December 28, 2007

Different subscribers, situated at different geographic locations, may request different types or levels of service. Because many of the subscriber units are connected to the same transmission line, however, they cannot be readily distinguished based on a subscriber unit identifier alone. In accordance with the claimed invention, correlation of each subscriber unit with a subscriber's geographic location via a location code permits provisioning of services for a particular subscriber. Even though two subscriber units may be coupled to the same transmission line, e.g., an optical fiber link, it is possible to differentiate them by correlation of a subscriber unit identifier with a subscriber's geographic location. In a point-to-point network as described by Mulcahy, no such correlation is required because a separate line is terminated with each user.

One main distinction between the disclosure of Mulcahy and Applicant's claimed invention is that Mulcahy applies to a telecommunications network that is fundamentally a point-to-point network. Because the Mulcahy network is point-to-point, the geographic location of each endpoint is knowable in advance of the installation of the subscriber unit, and can be maintained in a routing table. Because of the size and complexity of the routing table and the possibility of human error,¹ Mulcahy describes a method for correcting information that is knowable in advance but may be inaccurately recorded. Notably, this information is not a location code that permits identification of the geographic location of a subscriber as specified in Applicant's claims, but is instead a terminal number that locates a terminal within a junction box including multiple lines for different users. In contrast to the point-to-point system disclosed by Mulcahy, the claimed invention deals with point-to-multipoint networks where the geographic location of a subscriber unit is not known and indeed is unknowable prior to installation.

Mulcahy fails to disclose or suggest the requirements of Applicant's claims.

In view of the differences discussed above, Mulcahy fails to disclose or suggest the requirements of Applicant's claims. With respect to claim 1, for example, Mulcahy does not disclose prompting an installer to manually input a location code associated with a subscriber, particularly where the location code permits identification of a geographic location of the subscriber. On the contrary, Mulcahy describes a technique for updating routing table information for telecommunication lines that have already been activated and established. In

¹ Mulcahy et al., Col. 1, lines 25-30 ("such routing tables are often not accurate").

Application Number 09/873,933
Responsive to Office Action mailed December 28, 2007

particular, Mulcahy describes identification of terminals, nodes, and node types in a pre-established network, but makes no mention of subscribers associated with such equipment, nor location codes that permit identification of geographic locations associated with such subscribers.

The disclosure of Mulcahy refers to an active terminal line, e.g., a telephone line, in which terminal equipment is already associated with a calling line identity, e.g., a telephone number. In other words, a telephone number already exists in the Mulcahy network and is physically correlated with the terminal equipment. Consequently, there is no need for correlation of a subscriber unit with the geographic location of a subscriber in the Mulcahy network. Rather, Mulcahy is directed to recording the physical route of an active line through a local switch for which a telephone number already exists. Mulcahy fails to disclose the subject matter of the claims, which require receiving a location code that permits identification of a geographic location of a subscriber associated with a subscriber unit.

In the Office Action, the Examiner cited Col. 7, lines 64-67, of Mulcahy as disclosing receiving a location code in a subscriber unit. In the cited passage, however, Mulcahy states that an engineer may be prompted to enter a "node number" and a "terminal number." Neither the node number nor the terminal number discussed by Mulcahy constitutes a location code that permits identification of a geographic location of a subscriber, as set forth in Applicant's claims. In Mulcahy, the node number is simply a number assigned to a node within an access network. The terminal number is a number assigned to a terminal within a node through which a line passes.

Mulcahy states that each line passes through a pair of terminals in each node. Col. 8, lines 1-3. The "location code" specified by the claims is completely different from the node number or terminal number contemplated by Mulcahy. The node number and terminal number do not provide any information that would permit identification of a geographic location of a subscriber associated with a subscriber unit. Again, the terminal number in Mulcahy merely identifies a terminal through which a terminal line passes, without regard to a geographic location of a subscriber. The route of a terminal line may be physically moved from a first pair of terminals within the node to a second pair of terminals in the node without affecting the location of the subscriber associated with that terminal line.

Application Number 09/873,933
Responsive to Office Action mailed December 28, 2007

Dolin fails to overcome the deficiencies of Mulcahy with respect to Applicant's claims.

Dolin provides no teaching that would have suggested modification of Mulcahy to arrive at the claimed invention. For example, Dolin does not teach entry of a location code that permits identification of a geographic location of a subscriber associated with a subscriber unit. According to Dolin, a network node is characterized by a node_id, a node type, and a location code. The node_id described by Dolin is a unique identifier of the node, and is assigned at the time of manufacture. The node type is likewise assigned by the manufacturer. The location code is assigned, however, by a system installer. See, e.g., Col. 11, lines 42-49.

As in Mulcahy, the location code described by Dolin does not permit identification of a geographic location of a subscriber. In Dolin, the location code assigns the node to a particular group or subnet. See, e.g., Col. 11, lines 42-49. Accordingly, the location code described by Dolin does not relate to a geographic location. Dolin makes no mention of the use of a geographic location of a subscriber associated with a node. Indeed, there appears to be no concept of nodes and associated subscribers in the Dolin reference. In other words, none of the nodes described by Dolin appears to be any form of a subscriber unit. Even if Dolin were to contemplate a location code, as disclosed by Dolin a node communicates the node_id and node type to a handheld controller, and the handheld controller assigns the location code to the node. The node does not transmit such information to a central repository or to a remote device to correlate a subscriber unit with the geographic location of a subscriber.

A subscriber unit identifier would have no purpose in the Mulcahy system.

Moreover, even if a terminal number and node identifier were characterized as a location code and subscriber unit identifier, respectively, one of ordinary skill in the art still would not have considered modification of Mulcahy in view of Dolin to transmit both a location code and subscriber unit identifier. On the contrary, one of ordinary skill in the art would have considered the concept of a subscriber unit identifier to be meaningless in the Mulcahy system.

Application Number 09/873,933
Responsive to Office Action mailed December 28, 2007

A subscriber unit identifier uniquely identifies a subscriber unit in a point-to-multipoint network in which multiple subscribers receive the same information via a common link. Using subscriber unit identifiers, information sent via the common link can be differentiated. In this manner, a subscriber unit can determine whether a particular unit of information is relevant to the associated subscriber. If the information is relevant, the subscriber unit accepts the information from the common link. If the information is not relevant, the subscriber unit ignores it. The correlation of a subscriber unit with a geographic location permits information to be differentiated for delivery to the appropriate subscriber.

Because Mulcahy describes a point-to-point network, there is no need for a subscriber unit identifier. Moreover, modification of Mulcahy to transmit both a location code and a subscriber unit identifier would make no sense. In the system of Mulcahy, information is directed to terminal equipment by simply routing the information to the terminating line associated with the terminal equipment. Each terminating line can be identified with just a telephone number. No other information, such as a separate subscriber unit identifier, is required to ensure that terminal equipment only processes relevant information because all information sent via a terminal line is presumably relevant to the terminal equipment on that terminal line.

For this reason, Mulcahy fails to disclose a subscriber unit identifier, and the system described in Mulcahy has no purpose for a subscriber unit identifier. No prior art reference, including Dolin and the other prior art of record, would provide one of ordinary skill in the art motivation to modify the Mulcahy system to include transmitting the location code and a subscriber unit identifier as recited by claim 1. Indeed, one of ordinary skill in the art would consciously avoid such a modification because it would be meaningless in the Mulcahy system.

In view of the basic deficiencies discussed above, even if Mulcahy were modified in view of Dolin, the result would not conform to the requirements of the claims. In particular, neither Mulcahy nor Dolin suggests prompting an installer to manually input a location code associated with a subscriber, wherein the location code permits identification of a geographic location of the subscriber, as set forth in claim 1. Mulcahy and Dolin also would not have suggested receiving a location code associated with a subscriber that permits identification of a geographic location of the subscriber, as set forth in claims 49 and 56.

Application Number 09/873,933
Responsive to Office Action mailed December 28, 2007

In addition, Mulcahy and Dolin fail to suggest transmitting a location code and a subscriber unit identifier via a network to a central repository, and storing the subscriber unit identifier in the central repository to correlate the subscriber unit with a geographic location, as set forth. Similarly, Mulcahy and Dolin provide no teaching that would have suggested transmitting the location code and a subscriber unit identifier to a remote device for correlation of the location code with the geographic location, per claims 49, 56 and 63.

For at least these reasons, the Mulcahy and Dolin references, whether taken alone or in combination, do not support a prima facie case of obviousness under 35 U.S.C. §103 with respect to claims 1-2, 37, 39-41, 43-44 and 47-64. In view of the basic deficiencies identified above, Applicant reserves comment concerning the additional limitations set forth in the dependent claims, but in no way admits or acquiesces in the propriety of the Examiner's analysis with respect to such claims.

Claim 3

Claim 3 is allowable for at least the reasons discussed above with respect to claims 1 and 2. Moreover, claim 3 further requires prompting the installer to reinput a location code. None of the applied references provide teaching that would have suggested this requirement of claim 3.

The Office Action acknowledged that Mulcahy in view of Dolin does not show prompting the installer to reinput a location code. However, the Office Action stated that, if an error is detected, a field engineer can be instructed to perform appropriate operations to correct the error, referring to Col. 8, lines 19-22, of Mulcahy. However, the error referred to in Col. 8, lines 19-22, is an error in routing, and not an error in entry of a location code, as required by claims 2 and 3.

Reinputting a location code would not fix an error in routing of a terminating line or any other errors disclosed in Mulcahy. Therefore, one of ordinary skill in the art would have found no motivation to modify the Mulcahy system to include the feature of prompting an installer to reinput the location code, as recited by Applicant's claim 3, from Kennedy or any other prior art of record.

The Examiner cited Kennedy as allowing a "craftsperson" to re-input a correct directory number. The directory numbers discussed by Kennedy are associated with bearer channels, and

Application Number 09/873,933
Responsive to Office Action mailed December 28, 2007

are derived automatically from pre-established SPIDs. Therefore, Kennedy does not contemplate correction of errors in numbers entered by an installer. Moreover, Kennedy does not disclose prompting an installer to reinput a location code associated with a subscriber.

For at least these reasons, the applied references to establish a prima facie case for non-patentability of Applicant's claim 3 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

New Claims

Applicant has added claims 65-69 to the pending application. The applied references fail to disclose or suggest the inventions defined by Applicant's new claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed inventions.

As one example, the references fail to disclose or suggest correlating the subscriber unit with the geographic location based on the location code and the subscriber unit identifier, as recited by claims 63 and 65.

As another example, the references fail to disclose or suggest activating subscriber services provisioned for the subscriber after the correlation of the subscriber unit with the geographic location, as recited by claims 64, 66 and 67.

No new matter has been added by the new claims.

Application Number 09/873,933
Responsive to Office Action mailed December 28, 2007

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Applicant does not acquiesce with any of the Examiner's current rejections or characterizations of the prior art, and reserves the right to further address such rejections and/or characterizations.

Please charge any additional fees or credit any overpayment to deposit account number 50-1778.

The Examiner is invited to telephone the below-signed attorney to discuss this application.

Date:

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SHUMAKER & SIEFFERT, P.A.
1625 Radio Drive, Suite 300
Woodbury, Minnesota 55125
Telephone: 651.735.1100
Facsimile: 651.735.1102

By:



Name: Daniel T. Lund
Reg. No.: 58,614